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09/989,516	11/20/2001	Tatsuo Takanashi	01737/LH	1435

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EXAMINER	
STULTZ, JESSICA T	
ART UNIT	PAPER NUMBER
2873	

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/989,516	TAKANASHI ET AL.	
	Examiner	Art Unit	
	Jessica T Stultz	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kabe et al US 6,134,053.

Regarding claim 1, Kabe et al discloses a lens driving device comprising (Column 8, lines 26-34, wherein the pulse motor "52" is the lens driving device, Figure 1): a lens optical system having a moving lens group movable along a direction of an optical axis (Column 8, lines 1-53, wherein lens mount "26" which holds lens "20" moves along the optical axis by motor "52", Figure 1), and a focal length which can be altered in stages among a plurality of values (Column 10, line 64-Column 11, line 20, wherein the lens system can act as a zoom lens system and the focal length would change, Figures 1 and 6); a moving lens group frame holding said moving lens group (Column 8, lines 1-53, wherein lens mount "26" holds lens "20", Figure 1) ; an aperture device provided within said lens optical system (Column 8, lines 40-57, wherein the aperture device is iris diaphragm "22", Figure 1), and having a variable aperture value which can modified (Column 9, lines 1-11, wherein the diaphragm stop of iris diaphragm "22" is varied by motor "52", Figures 1 and 2) in both an ascending an descending manner (Column 7, lines 40-51, wherein the iris diaphragm "22" can be driven in the direction of "iris-in" or "iris-out" i.e. ascending or descending, Figures 1 and 2); a single driving source for changing the focal length

value of the lens optical system and the aperture value of the aperture device (Column 10, line 64-Column 11, line 19, wherein the pulse motor "52" changes the focal length value and the diaphragm value, wherein the desired focal length value is defined by the lens frame positioned in one of the insensitive regions "83 or 84", Figures 1 and 6); and a driving member driven by the single driving source for driving the moving lens group frame to achieve a desired focal length value of the lens optical system from among a plurality of focal length values, and for then driving the aperture device to change the variable aperture value of the aperture device in at least one of the ascending or descending manner at the desired focal length (Column 7, lines 40-51, wherein the iris diaphragm "22" can be driven in the direction of "iris-in" or "iris-out" i.e. ascending or descending at the insensitive regions, Figures 1 and 2) while maintaining the desired focal length value (Column 11, lines 1-28, wherein the cylinder cam "80", moves the lens group frame and aperture value with cam slits "81-82" and drive plates "85-86" and the desired focal length is defined by the lens frame being positioned in one of the insensitive regions "83 and 84", Figures 1 and 6).

Regarding claim 2, Kabe et al further discloses a lens driving device as disclosed above wherein the driving member (Column 11, lines 1-8, wherein the cylinder cam "80", moves the lens group frame "26" and aperture "22", Figure 6) includes: a lens driving cam ("80") comprising, in sequential connection, a first cam region which performs driving to displace the moving lens group frame in the optical axis direction (Column 10, line 64-Column 11, line 8, wherein the first region is the space between cam slits "81-82", Figure 6), and a second cam region which does not perform driving to displace the moving lens group frame in the optical axis direction (Column 11, lines 1-8, wherein the insensitive regions "83-83" are the second

region which do not displace the lens group frame "26", Figure 6); and an aperture driving cam formed separately from the lens driving cam for performing driving to change the aperture value of the aperture device when the moving lens group frame is in a state of not being displace in the optical axis direction due to the moving lens group frame being in the second cam region (Column 10, lines 1-19, wherein the driving plates "85-86" move the iris diaphragm "22", Figure 6).

Regarding claim 3, Kabe et al further discloses a lens driving device as disclosed above wherein the driving member comprises a cam ring of cylindrical shape having a substantially uniform wall thickness (Column 11, line 1, wherein the cam "80" is cylindrical and shown in Figures 1-6, wherein the cam "40" is replaced by cam "80" for a zoom lens system); and the lens driving cam and the aperture driving cam are formed in the cam ring of cylindrical-shape as cam holes or as cam grooves (Column 11, lines 1-8, Shown in Figure 6, wherein the grooves are slits "81-82").

Regarding claim 4, Kabe et al further discloses a lens driving device as disclosed above wherein the aperture driving cam is formed so as not to change the aperture value of said aperture device during driving displacement of said moving lens group frame in the first cam region (Column 11, lines 21-35).

Regarding claim 5, Kabe et al further discloses a lens driving device as disclosed above including an impelling member (Column 7, lines 40-51, wherein the diaphragm blades "23" are an impelling member, Figures 1-6), provided in the aperture device (Column 7, lines 40-51, wherein the blades "23" are part of the iris diaphragm "22", Figures 1-6), which impels the aperture device in a prescribed direction such that the aperture value of the aperture device

assumes a value determined in advance (Column 9, lines 1-11, wherein the diaphragm value is changed by driving plate "43", Figures 1-6); and wherein while the moving lens group frame is driven and displaced in the first cam region (Column 11, lines 1-35, wherein the first cam region includes cam slits "81-82", Figure 6) the aperture value of the aperture device attains the aperture value set in advance by means of the impelling force of the impelling member, without the aperture device being engaged with the aperture driving cam (Column 11, lines 1-30, Figure 6).

Regarding claim 6, it is inherent from Kabe et al that the aperture device be impelled in a direction in which the aperture diameter is decreased, this being reasonably based upon the need for smaller aperture diameters for different photographic needs.

Regarding claim 7 and 8, Kabe et al further discloses the lens driving device as disclosed above wherein the driving member is formed such that moving lens group frames are driven to achieve the desired focal length value of the lens optical system (Column 8, line 42-Column 9, line 1 and Column 11, lines 1-30, wherein the desired focal length value is defined by the lens frame positioned in one of the insensitive regions "83 or 84") and the aperture device can then be driven to modify the aperture value while maintaining the desired focal length value (Column 9, lines 1-11 and Column 11, lines 1-30, wherein the cylinder cam "80", moves the lens group frame and aperture value with cam slits "81-82" and drive plates "85-86" and the desired focal length is defined by the lens frame being positioned in one of the insensitive regions "83 and 84", Figures 1 and 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kabe et al in view of Hotta et al.

Regarding claim 9, Kabe et al discloses a lens driving device comprising a moving lens group frame (Column 8, lines 1-53, wherein lens mount "26" holds lens "20", Figure 1), capable of movement in an optical axis direction (Column 8, lines 1-53, wherein the lens mount "26" moves along the optical axis, Figure 1); an aperture device provided in the moving lens group frame (Column 8, lines 40-57, wherein the aperture device is iris diaphragm "22", which is held in mount "26", Figure 1), and having a variable aperture value which can be modified in both an ascending and descending manner (Column 7, lines 40-51, wherein the iris diaphragm "22" can be driven in the direction of "iris-in" or "iris-out" i.e. ascending or descending, Figures 1 and 2); a cam member including: a lens driving cam (Column 11, lines 1-8, wherein the cylinder cam "80", moves the lens group frame "26" and aperture "22", Figure 6) having a first cam portion and a second cam portion that are formed successively to drive corresponding moving lens groups (Column 10, line 64-Column 11, line 8, wherein the first region is the space between cam slits "81-82", Figure 6 and Column 11, lines 1-8, wherein the insensitive regions "83-83" are the second region which do not displace the lens group frame "26", Figure 6); and a third cam portion formed separately from said lens driving cams (Column 10, lines 1-19, wherein the driving plates "85-86" move the iris diaphragm "22", Figure 6); and a single driving source for driving said cam member to drive and displace said moving lens group frames and to drive said aperture device for changing a variable aperture value (Column 10, line 64-Column 11, line 19,

wherein the pulse motor "52" changes the focal length value and the diaphragm value, wherein the desired focal length value is defined by the lens frame positioned in one of the insensitive regions "83 or 84", Figures 1 and 6); wherein said first cam portion is provided in a range in which said moving lens group frame is driven and displaced in the optical axis direction (Column 11, lines 1-8, wherein the cylinder cam "80", moves the lens group frame "26" in the optical axis direction between cam slits "81-82", Figure 6); said second cam portion is provided in a range in which said moving lens group frames are not driven and displace in the optical axis direction (Column 11, lines 1-8, wherein the insensitive regions "83-83" are the second region which do not displace the lens group frame "26" and the desired focal length is defined by the lens frame being positioned in one of the insensitive regions "83 and 84", Figure 6); and said third cam portion drives said aperture device to change the variable aperture value in at least one of the ascending or descending manner at the desired focal length (Column 7, lines 40-51, wherein the iris diaphragm "22" can be driven in the direction of "iris-in" or "iris-out" i.e. ascending or descending at the insensitive regions, Figures 1 and 2) when said moving lens group frames are in a state of not being displaced in the optical axis direction due to said moving lens group frames being in the range of said second cam portion (Column 10, lines 1-19, wherein the driving plates "85-86" move the iris diaphragm "22" and the lens frame is held in the desired focal length wherein the lens frame is positioned in one of the insensitive regions "83 and 84", Figure 6), but does not specifically disclose that the driving device comprise at least two moving lens group frames, each capable of different movement in an optical axis direction by the cam members. However, Kabe et al will inherently have at least two moving lens group frames capable of different movement by the cam member this being reasonably based upon Kabe et al

disclosing that the driving device can be used in a zoom lens system which will inherently require one lens group to move as a variator and a second lens group to move as a compensator. Regardless, Hotta et al teaches that in a lens driving device wherein a lens group and a field stop are moved by a single driving source using a cam mechanism (Column 2, lines 8-15), the system can further comprise another lens group moved by the same driving source (Column 1, lines 44-61 and Column 5, lines 23-32, wherein the lens groups are "3" and "5" and the field stop is "4", Figures 1A and 1B) for the purpose of moving both a variable power lens group of an objective lens system and a variable power lens group of an eyepiece optical system along the optical axis (Column 1, lines 44-61). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made for the lens driving device of Kabe et al to further include an additional lens group moved by the same driving source since Hotta et al teaches that in a lens driving device wherein a lens group and a field stop are moved by a single driving source using a cam mechanism, the system can further comprise another lens group moved by the same driving source for the purpose of moving both a variable power lens group of an objective lens system and a variable power lens group of an eyepiece optical system along the optical axis.

Regarding claim 10, Kabe et al further discloses a lens driving device as disclosed above including control means for controlling operation of said cam member (Column 8, lines 42-53, wherein the control means is "50", Figure 1), as driven by said driving source (Column 8, lines 42-53, wherein the control means "50" is driven by the driving source "52", Figure 1), to set a focal length obtained by movement of said moving lens group frames and the aperture of said aperture device to desired values (Column 8, line 54-Column 9, line 11, Figure 1).

Regarding claim 11, Kabe et al further discloses a lens driving device as is disclosed above wherein said driving member comprises a cam ring of cylindrical shape (Column 11, line 1, wherein the cam is cylindrical cam "80", which is equivalent to cam "40", Figure 6) having a substantially uniform wall thickness (Shown in Figure 6); and the first cam portion, second cam portion, and third cam portion are formed as cam holes or cam grooves in the cam ring of cylindrical-shape (Column 11, lines 1-8, wherein the slits "81-82" are cam grooves in the cam "80", Figure 6).

Regarding claim 12, Kabe et al further discloses a lens driving device as disclosed above wherein the aperture driving cam is formed so as not to change the aperture value of said aperture device during driving displacement of said moving lens group frame in the first cam region (Column 11, lines 21-35).

Regarding claim 13, Kabe et al further discloses a lens driving device as disclosed above including an impelling member (Column 7, lines 40-51, wherein the diaphragm blades "23" are an impelling member, Figures 1-6), provided in the aperture device (Column 7, lines 40-51, wherein the blades "23" are part of the iris diaphragm "22", Figures 1-6), which impels the aperture device in a prescribed direction such that the aperture value of the aperture device assumes a value determined in advance (Column 9, lines 1-11, wherein the diaphragm value is changed by driving plate "43", Figures 1-6); and wherein while the moving lens group frame is driven and displaced in the first cam region (Column 11, lines 1-35, wherein the first cam region includes cam slits "81-82", Figure 6) the aperture value of the aperture device attains the aperture value set in advance by means of the impelling force of the impelling member, without the aperture device being engaged with the aperture driving cam (Column 11, lines 1-30, Figure 6).

Regarding claim 14, it is inherent from Kabe et al that the aperture device be impelled in a direction in which the aperture diameter is decreased, this being reasonably based upon the need for smaller aperture diameters for different photographic needs.

Regarding claim 15, Kabe et al further discloses the lens driving device as disclosed above wherein the driving member is formed such that moving lens group frames are driven to achieve the desired focal length value of the lens optical system (Column 8, line 42-Column 9, line 1 and Column 11, lines 1-30, wherein the desired focal length value is defined by the lens frame positioned in one of the insensitive regions "83 or 84") and the aperture device can then be driven to modify the aperture value while maintaining the desired focal length value (Column 9, lines 1-11 and Column 11, lines 1-30, wherein the cylinder cam "80", moves the lens group frame and aperture value with cam slits "81-82" and drive plates "85-86" and the desired focal length is defined by the lens frame being positioned in one of the insensitive regions "83 and 84", Figures 1 and 6).

Response to Arguments

Applicant's arguments filed April 20, 2004 have been fully considered but they are not persuasive. Specifically, applicant argues that Kabe et al does not show that the aperture value may be driven in the ascending manner and the descending manner, without changing the focal length value. However, applicant is not claiming this. Instead applicant is claiming changing the aperture device in at least one of the ascending or descending manner while maintaining the desired focal length. Kabe et al discloses that if an insensitive zone is the "desired focal length", then the aperture device can move at least one of the ascending or descending manner without having to move the lens frame and therefore "while maintaining the desired focal length value".

Examiner suggests that the following alternatives to overcome the above rejection: "aperture device in both of either the ascending and descending manner", or "aperture device in the ascending and descending manner" or similar language in terms of "may be driven in the ascending manner and the descending manner, without changing the focal length value".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica T Stultz whose telephone number is (571) 272-2339. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jessica Stultz
Patent Examiner
AU 2873
April 28, 2003

JORDAN SCHWARTZ
PRIMARY EXAMINER